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GUEST EDITORIAL

- Should Universal Licensure Be Adopted?....235**
by Robert B. Marin, M.D.

ORIGINAL ARTICLES

- Cholecystitis237**
by G. B. Hodge, M.D.
- A Bird's-Eye View of the Clinical Problem
of Chronic Fatigue in Ordinary People.....238**
by Floyd Boys, M.D.
- Roentgen Therapy in Malignant Disease....247**
by Wade S. Rizk, M.D.
- Prognosis251**
by F. R. Stearns, M.D.
- Some Aspects of the Therapy of Various
Painful States255**
by E. M. Papper, M.D.
- Is There Any Relationship Between Acute
Appendicitis and Contagious Diseases?.....260**
by Irving Silverman, M.D.
- Case Presentation261**
- Therapeutic Suggestions263**
- Diagnostic Suggestions267**
- Book Reviews271**

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Should Universal Licensure Be Adopted?

By ROBERT B. MARIN, M.D.

EDITORIAL NOTE: We publish Dr. Marin's article without identifying ourselves with the ideas presented herein. We feel, however, that Dr. Marin's thesis of universal licensure in the United States is a problem worthwhile to be considered and to be discussed. We are aware of the reasons which would favor such a change in licensure procedures and we also are alive to the arguments which oppose such a change. As the question of licensure concerns every practicing physician, we hope that the following paper will be stimulative to an interchange of opinions. We shall be glad to bring to the attention of our readers any essential views which will further the clarification of this problem.

At a time when public confidence in any group may be the criterion of its existence, the American public is faced with a growing shortage of physicians. This shortage is not widespread at the present time, but potentially will affect many segments of our country in the coming years. Contributing to this situation are education of our population to better health awareness, the normal increases in population, and the prolonged life span. The pertinence of this situation has been of concern to medical educators for the last ten years, highlighted by the present world crisis and the knowledge that a large proportion of medical school graduates will not be available for public health care. If medicine is to survive as a free unit, a speedy solution must be found. No better back door to socialized medicine exists in the present crisis than in the demanding need for physicians throughout the country.

Already certain groups within the government feel that socialization of medical personnel and controlled distribution is indicated. Other factions

both in government and within the structure of organized medicine advocate government subsidized medical schools with a sharp increase in the number of graduates each year. This is an enticing picture, since it offers the already financially over-burdened medical schools a ready monetary stability. Just how much control implied or in fact would accompany such governmental benevolence is a question in dispute. The American Medical Association, through the establishment of an educational foundation, hopes to independently establish a vast fund for direct aid to medical schools. To people without adequate care, all these ideas are worthy of consideration.

It is natural that the major concentration of physicians is in the large cities and suburban areas. Furthermore, for the last decade, a high proportion of our graduates have had specialist's training, and their habitat is in or near the large hospital and teaching centers throughout the country. Many city areas are thus over specialized and over staffed, while adjacent country or rural areas lack adequate care. Illustrating this are the ads placed by individual states, communities, and industries in various medical magazines. These direct advertisements carry with them a variety of inducements from subsidized housing to subsidized income, and show a real need for a better distribution of medical personnel of all types.

To cover however inadequately the areas desperately needing physicians, forward looking medical educators have advocated clinical clerkships for the senior student under

GUEST EDITORIAL

apprenticeship to doctors in medically understaffed areas. "The Kansas Plan" has pioneered in the provision of doctors for rural and country areas.

A major barrier to the better distribution and interexchange of physicians is the present individual state licensure system. Paradoxically, many of the licensing boards in a sincere effort to keep out quacks, fake healers, the untried and untrained have piled requirement upon requirement directly aimed at a limited personnel, but actually keeping out many well trained and competent physicians whose knowledge of elementary sciences has faded before the larger and more important field of advanced clinical medicine. An outstanding example of this is the present basic science requirements of many states, sincerely instituted, but actually limiting sharply the interchange of physicians by either examination or reciprocity. For these reasons, many educators believe that the time has come to consolidate the tremendous variety of requirements in individual states

and institute the more practical and workable system of universal licensure. There is no reason why a graduate of a grade A college, of proper moral character, possessing the required post graduate training should not be licensed by a single examination to practice in any state of the Union. The free exchange of ideas and personnel has always been the hall-mark of the true scientist.

Universal licensure would raise medical standards by requiring all graduates to be those of grade A medical schools, stimulate competition so necessary to good medicine, provide for and effect a better interexchange of physicians, and therefore ideas, stimulate graduate study, and provide a challenging answer to the advocates of socialized medicine. While universal licensure would be but one of the many forward steps which American physicians have taken toward the provision of more adequate medical care, it would be one of the most important, and should therefore receive the considered thought of every American physician.

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Cholecystitis

By G. B. HODGE, M.D.

Spartanburg, South Carolina

Acute and chronic cholecystitis may or may not be associated with gall bladder calculi. However, in the vast majority of cholecystitis, calculi are present. The symptomatology is variable in the two conditions.

Acute cholecystitis unassociated with stones is infectious in nature being due to one of the coliform or pyrogenic bacteria, and is usually heralded by constitutional symptoms of malaise, fever, abdominal pain and digestive symptoms such as gaseous distention, eructation, flatulence, nausea and vomiting.

The findings are those of fever, leukocytosis, upper abdominal tenderness associated with some degree of muscle rigidity. There is inspiratory inhibition on pressure in the right upper abdominal quadrant.

Acute cholecystitis associated with cholelithiasis presents itself in a slightly different manner. The patient usually has biliary colic with pain in the right upper abdominal quadrant, and the pain usually radiates around the costal margin toward the tip of the right scapula. At times the pain may radiate across the left upper abdominal quadrant toward the tip of the left scapula since the gall bladder has a dual innervation. However, in the majority of cases, the innervation is predominately right-sided. The findings of an acute inflammatory process usually make themselves evi-

dent following obstruction of the cystic duct. This may lead to empyema of the gall bladder with gangrene and possible rupture, or should the inflammatory process subside and the obstruction persist, a hydrops of the gall bladder will develop.

In those cases where there is a recurrence of the infectious or inflammatory process in the gall bladder, a state of chronic cholecystitis develops, and it is usually in these cases that calculi are present in the vast majority. There are those cases of metabolic disorders of the gall bladder, such as cholesterolemia, in which there is no inflammation but an abnormal absorption between cholesterol and bile pigments resulting in the formation of pure cholesterol stones.

The treatment of cholecystitis with or without cholelithiasis is cholecystectomy. In certain selected cases in whom the surgical risk is too great to warrant cholecystectomy, cholecystostomy may and should be carried out. The mortality rate from cholecystectomy in acute cholecystitis is practically nil in the hands of the experienced and qualified surgeon. However, in the hands of the occasional operator, watchful waiting or cholecystostomy may be far safer since biliary surgery has many pitfalls to those who are not familiar with the anomalous conditions of the ductal and arterial system the right upper abdominal quadrant.

Should cholecystostomy be performed, cholecystectomy may be considered at a later date when the patient's condition is such to warrant further surgery.

A Bird's-Eye View of the Clinical Problem Of Chronic Fatigue in Ordinary People

Practical Suggestions of Recognition and Treatment

By FLOYD BOYS, M.D.

Associate Professor of Health Education,
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Those people generally called upon to handle the everyday health problems of the ordinary, non-sick working adult are the physician, the school health educator or hygienist, the physical educator, and the industrial personnel supervisor. As these individuals are well aware, one of the most common complaints brought to their attention is that of *chronic fatigue*. Many developments accompany this state which are undesirable from the viewpoints of both the individual and society. Chronically tired people do not do their work as speedily or efficiently as possible, and industrial or commercial output suffers accordingly. Safety statistics also indicate that the accident rate, both at home and at work, is higher than necessary among those who are fatigued. Further, chronically tired individuals miss a great deal of enjoyment in life because they do not feel up to normal participation in everyday family and social activities; they miss much of the zest of living. Therefore, for these and other reasons, and particularly in these busy days of partial national military and economic mobilization, it is desirable that those people called upon to handle the everyday health problems of the ordinary adult re-familiarize themselves with some of the gross, but pertinent, facts relating to the recognition, treatment and prevention of chronic fatigue.

In attacking this problem it is

necessary that the investigator see both the over-all picture ("the woods") and the details ("the trees"). Of course, tired people seek the assistance of their physician or other health adviser because of their specific symptoms or signs of fatigue ("the trees"). But, as most successful practitioners in this field will attest, effective treatment demands primarily that the examiner or consultant see the over-all picture ("the woods") and how the particular patient's case fits into it. It is recognized that the diagnostic and therapeutic details relating to chronic fatigue are most important. But, initially, perhaps of greater value to the investigator is a thorough appreciation of the gross, over-all aspects of this problem. Therefore, this paper is limited to a brief review of some of the general factors in chronic fatigue. For quite obvious reasons this discussion will be based considerably on the author's medical experience.

It is believed proper at this point to cite certain fundamental facts known in general about chronic fatigue. A few of those considered of practical significance can be listed as follows: (a) Fatigue is a non-specific and subjective complaint. Like *fever* or *pain*, alone it does not tell us much. Therefore, in attacking any case of chronic fatigue we must not let our diagnostic measures and therapeutic recommendations be too general or vague. Many doctors fail in handling their fatigue cases because they do not strive for the most specific diagnosis and therapy possible.

ORIGINAL ARTICLES

(b) As most experts in clinical psychology and medical physiology try to teach, it is necessary to remember that in almost all chronic fatigue cases both physical and psychological factors generally are at work. We must beware, then, of the "either-or" attitude. It is quite true that in many instances certain physical factors may predominate in the etiology of the disorder, or vice versa. Nevertheless, the doctor getting the best therapeutic results will always review all of the possible and ordinary physical and psychological factors. He will never, or rarely, think or say to his patient, "Your fatigue trouble is entirely due to anemia," or "Your fatigue difficulty is just due to nerves."

(c) Physicians should remember that a great deal of diagnostic help can be obtained from considering the usual steps in the chronological development of chronic fatigue, and trying to determine at just what level or stage his tired patient has reached. The therapy of early chronic fatigue generally is quite different from that of the later stages.

(d) It is necessary to remind practitioners that the success of all diagnostic and therapeutic measures will

depend considerably upon their doctor's fundamental attitude towards the problem of chronic fatigue. If the physician subjectively does not believe that much can be done in the way of diagnosis or treatment, he will not get very far in handling these cases. If the author's experience did not fully confirm the fact that most cases of chronic fatigue generally can be analyzed and treated successfully, he would not be taking the time to compose this report.

The material of this paper will be presented under three headings. (a) There will be given a short description of the three cardinal *physical factors* usually encountered in chronic fatigue in ordinary people, and also a similar description of the three cardinal *psychological factors* frequently observed. (b) There will be presented a brief outline of the chronological development of the symptoms and signs observed in ordinary chronic fatigue cases. The purpose of this effort will be to give the over-all picture which has been found by the author to be helpful in diagnosis. (c) The chronological outline will be illustrated by one case record given in sufficient detail to describe how the author attacked one

1. It is accepted and taught by many reputable psychologists and philosophers that every one of our experiences or actions has a psychological basis since they each involve some degree of thinking. Most of these experts agree that there are three subjective components of consciousness or thought, parts which are distinct, yet aspects of a concrete unitary whole. These generally are referred to as (a) cognition, (b) affect or feeling, and (c) conation.

Cognition is the conceptual or ideational part of thought. Frequently the idea initiating any action or response is consciously constructed, but sometimes it is reached almost subconsciously and not openly recognized as such.

Affect refers to the emotional tone associated with the idea—whether it is pleasurable or distasteful. An idea is pleasurable if it will produce, now or later, some satisfaction of body or mind. Examples of plain bodily satisfaction are appeasement of hunger, pleasant rest, soothing skin sensations, invigorating air, and so forth. Examples of essentially mental

satisfaction are such things as seeing a beautiful view, hearing soothing music or an inspiring talk, work achievement, etc.

Conation concerns volition or motivation for action or response. The theologians refer to this attribute of consciousness or thought as *will*. No matter how good the idea (cognition) or the feeling associated with it (affect), action does not result unless we have enough initiative to institute effort towards bringing about the realization of the idea (conation).

It is important that we realize that all three components or attributes of thought co-exist simultaneously, that man is a totality whose thinking, feeling and acting are merely different aspects of a total process. No action or response occurs without each component being present to some degree. Satisfactory action requires that the idea be interesting or valuable (cognition), that associated with it there be some degree of anticipated emotional satisfaction (affect), and that there be included enough will or motivation to cause the individual to expend the necessary effort to effect it (conation).

ORIGINAL ARTICLES

clinical case of chronic fatigue.

The Cardinal Physical and Psychological Factors That Usually Underlie Most Chronic Fatigue Cases

Without going into any detail regarding physiological and clinical background, the author wishes to suggest that as far as *physical factors* go in these cases there is usually found disruption in the patient's hygiene habits relating to *nutrition, physical activity, and sleep*. The author's experience indicates that in most of these cases, especially those of advanced fatigue with enough complaints to cause the patient to seek medical assistance, there is almost always disturbance in one or all of these three physical factors. Without significant upset in these three physical spheres, few chronically tired people will develop enough complaints to cause them to seek medical help; they will be content to carry on with home remedies.

As to the cardinal *psychological factors* frequently at work in cases of chronic fatigue, the problem of description is difficult. This is especially true when time and space permit only a brief, fragmentary discussion. The author has found the following analysis helpful.

(a) *The symptoms suggesting psychological fatigue*. These are classified under one or all of the three attributes of thought or consciousness.¹ If the disturbance is primarily in the field of *cognition* (the chief symptom being boredom, disinterest in one's work or life) the symptom complex may be referred to as *mental fatigue*. If the trouble resides primarily in the zone of *affect* (the cardinal symptom being fear in open or disguised form such as revenge, hatred, etc.) the symptom complex may be called *emotional fatigue*. When

the disturbance essentially relates to *conation* (the common symptom being staleness or cynicism or pessimism about one's work or life) the symptom complex may be referred to as suggesting *spiritual fatigue*. In other words, the subjective complaints suggesting any one of these three types of psychological fatigue vary somewhat from one to the other.

(b) *The signs suggesting psychological fatigue*. Here we have a more simple picture. When psychological disturbance is acute enough to cause bodily signs, definite psychological conflict is thought to exist; that in this situation cerebral impulses are transmitted from the cortex to the hypothalamus and from there to the vegetative nervous centers. In other words, in the more advanced cases of chronic fatigue with discernable psychological conflict, the presenting signs will be due to over-stimulation of one (or both) branches of the autonomic nervous system. The common signs of such autonomic nervous system over-activity are well-known. Very briefly some of the common *cardiovascular signs* are increased pulse rate and blood pressure, transient moments of light-headedness, skipped heart beats, etc.; those involving the skin are cold or hot skin, pale or flushed skin, nervous rashes, abnormal sweating, etc., the more common *gastro-intestinal signs* are functional gas and bloating, nausea or vomiting, gastric hyperacidity, loose or frequent bowel movements, etc.; the *genito-urinary signs* that may so develop are urinary frequency, urgency, etc.; *nervous system signs*, too, may be observed such as general restlessness, mannerisms or tics, insomnia, non-specific fine hand tremors, etc.

ORIGINAL ARTICLES

Chronological Development of Various Stages in Chronic Fatigue Syndrome

The following scheme relating to the chronological development of psychological fatigue is based on the author's clinical experience in handling chronic fatigue cases of different sorts. Although some writers on this topic might differ with this outline, it is hoped that they would agree that it is helpful in getting an overall viewpoint when evaluating these cases.

Stage 1. START OF CONFLICT.

This is the period centering around the beginning of the psychological conflict. The first one to recognize that something is wrong in the tired person is usually the husband or wife or some associate at work. The tired individual himself generally will recognize that there is a psychological conflict but frequently his notions are a bit vague about it. Taking the case of a man at work, it can be learned that this individual recognizes that his job is getting boring (cognition), that it is unpleasant (affect), or that there is no future foreseen in it (conation).

In this stage the tired person continues to maintain satisfactory habits of nutrition, he keeps up his ordinary physical activity, and his sleep and rest remain undisturbed.

Stage 2. DEVELOPMENT OF DISTURBANCE IN HYGIENE HABITS

After Stage 1 has been present for a certain length of time, depending upon the seriousness of the conflict and the make-up of the individual involved, a careful observer of the situation can detect the onset of a second phase in the progression of the problem—increasing disturbance of everyday hygiene habits.

In the physical sphere, the tired in-

dividual begins to show (a) progressive disruption of eating and nutrition habits. He may detect that he skips meals, eats improperly at other meals, over-indulges in high carbohydrate items (cake, pie, soft drinks, candy, etc.), and finds no appetite for meals or no enjoyment in them. Next, (b) physical activity habits become disordered. The individual becomes more and more sedentary, and any previous habits of regular activity (gardening, sports, etc.) becomes upset. Finally, (c) this psychologically tired person (or his spouse) observes that his sleeping habits become abnormal. He goes to bed later, may have some trouble getting to sleep, sleep may not be restful and he awakens tired.

In the psychological sphere, similar disturbances begin to occur. Using again for illustration a man unhappy with his work, we may find (a) that he becomes overtly more and more bored with his work (cognition), (b) that the job becomes more and more unpleasant and even some elements of fear regarding his tenure (affect), and (c) he may find that he has less and less motivation to try hard to make the job successful (conation).

Stage 3. DEVELOPMENT OF FATIGUE PROPER.

If the psychological conflict still has not been settled, usually the tired person enters Stage 3 and presents for the first time recognized symptoms or signs of fatigue. The individual himself generally complains of fatigue, and close associates also detect the same.

In the physical sphere, the disturbances noted above in nutrition, physical activity and sleep become progressively worse. Similar trends develop in the three psychological areas.

ORIGINAL ARTICLES

At this point, usually the tired individual tries to "do something about it." He may talk over his problem with his spouse or close friends, and may even discuss it briefly in general terms with his foreman or boss. Not uncommonly several "home remedies" are tried in hopes that he will feel better. In the physical sphere, the tired person may try "taking some vitamins or tonics," or he might try sedatives in hopes of getting more rest. In the psychological sphere, the individual may ask advice from his clergyman or an older relative, or he may seek assistance by reading articles about fatigue in some of the popular magazines now flooding the market.

Stage 4. DEVELOPMENT OF MEDICAL CONDITIONS FOR WHICH HELP IS NEEDED.

Should the psychological conflict still be unresolved, not uncommonly the patient next develops symptoms and signs of some chronic physical complaint which may or may not be accompanied by fear. At this stage he may develop "stomach trouble" and wonder if he has a peptic ulcer, or he may acquire some "colon trouble" and imagine that he has cancer. He may find himself getting short of breath with asthmatic wheezes and suspect that he has some lung abnormality. He may develop heart symptoms and become concerned lest he be getting high blood pressure, coronary disease, or other serious heart ailment.

Whenever these complaints become disturbing enough, the tired individual usually seeks medical aid. His course from here on depends largely upon the doctor's acumen in diagnosing and handling the case. The wise physician will search for all possible physical and psychological factors that may be influencing the man's

case, and he will prescribe treatment measures accordingly.

The experience of most clinicians dealing with chronic cases indicates that in most ordinary fatigue cases both physical and psychological factors are at work to varying degrees. Of course, one or the other may predominate and deserve most attention. But, the cardinal physical and cardinal psychological factors which have been mentioned must be carefully weighed and treated as required. Just as most cases of chronic fatigue predominantly psychological in origin will be benefited by attention to diet, physical activity and rest, so will most fatigue cases predominantly physical in origin be helped by insuring proper attention to the psychological factors.

The physician getting the best results in chronic fatigue cases should be broad enough in training and temperament not to hesitate to refer the patient to outside specialists for specific therapy which they can do best for the tired person. Let me cite a few examples. (a) It is very helpful in predominantly psychological fatigue cases where the crux of the problem is dissatisfaction in a man's work, to refer him to an educational psychologist to find out just what sort of work the man actually can do best considering his basic talents. (b) When any fatigue case requires a careful program of physical re-conditioning, the doctor should not hesitate to seek for his patient the services of a competent YMCA physical director or other physical education expert, to have the man get massage and hydrotherapy from a trained masseur, etc. (c) If the basic problem in a fatigue case revolves around a loss of values in life, it is wise for the doctor to refer his patient to a sympathetic and competent clergyman for guidance. (d)

ORIGINAL ARTICLES

Should it be found in a fatigue case that serious personality disturbance is present bordering on neurosis or psychosis, it is extremely helpful to refer the man to a psychiatrist. (e) Some fatigue cases revolving around financial problems are benefited by having the patient counselled by a competent business man. (f) If a fatigue case involves undue social shyness, the doctor should not hesitate to get the assistance of a reliable dancing school, social clubs, and allied organizations to help the man learn some of the social graces and "get out away from himself."

Stage 5. THE UNSOLVED FATIGUE CASE.

If the above therapeutic measures have been unsuccessful, the author believes the proper course of action is for the physician to send the man to another doctor with the instruction that the whole approach to the problem be re-started by new medical and other counselors. The author has seen cases meeting failure in the hands of one doctor be successfully resolved in the hands of another physician. Both doctors were equally competent medically but differed in temperament and cultural background.

*A Case Summary Illustrating the Diagnosis and Treatment in a Typical Case of Chronic Fatigue Using the Scheme Just Described**

Five years ago the author was consulted by a married man of 44 who,

following military discharge eight months prior, was working in a factory at a routine job running a simple punch press. Upon leaving the Army circumstances more or less forced him to take this job as it was the best paying one available to him then. He was happily married but the couple had no children. Up to this time his physical health had been normal so far as he knew. He had no spiritual doubts or problems; life was interesting and worthwhile.

Not many weeks after starting the press job he realized that things were not going well at work. He found the job more and more boring and unpleasant, and began to doubt if it had much future for him. The state of affairs in the three physical and three psychological spheres which we have discussed could be summarised as follows: Be this as it may, the man did nothing about the situation. He was content to let things drift along.

It was not long, however, before the man's problem became more aggravated. His wife noticed that he began to skip meals or just toy with his food, his physical activity habits became more sedentary, and she observed that he started going to bed very late and that he got too little sleep. At work, his foreman also

*As previously commented upon, the physical and psychological factors may predominate in individual cases. In this illustration the basis of the fatigue was psychological. The author does not wish to give the impression, however, that most chronic fatigue cases are of this sort.

	PHYSICAL	PSYCHOLOGICAL
Stage 1	1. Nutrition—satisfactory.	1. Cognition—dislikes job.
START OF CONFLICT	2. Physical Activity—average.	2. Affect—fearful that boss will penalize him for his indifferent work, etc.
	3. Rest—satisfactory.	3. Conation—hard to expend much effort in job.

ORIGINAL ARTICLES

noticed some changes. It was obvious to the foreman that the man was bored stiff with his job, and that when the patient occasionally was "jacked up" about showing more interest in his work, the fellow gave many poor, petty excuses for his less efficient work. The foreman was con-

vinced that the patient was doing just enough "to get by," and that the man was not interested in trying very hard. The state of affairs in the three physical and three psychological spheres which we have been discussing could now be summarized as follows:

	PHYSICAL	PSYCHOLOGICAL
Stage 2 DISTURBED HYGIENE HABITS	<ol style="list-style-type: none"> 1. <i>Nutrition</i>—skips meals, eats too much starch, drinks too much, etc. 2. <i>Physical Activity</i>—less and less. 3. <i>Rest</i>—late hours, too little sleep. 	<ol style="list-style-type: none"> 1. <i>Cognition</i> — too bored with job to study much at it, less and less informed, etc. 2. <i>Affect</i> — employs more and more rationalizations or excuses for poor work, etc. 3. <i>Conation</i> — does only enough to get by, etc.

The patient began to feel worse, and complained chiefly of non-specific fatigue. When his wife asked him what was wrong, he only replied

that he was "just tired." The physical and psychological factors can be summarized briefly as follows:

	PHYSICAL	PSYCHOLOGICAL
Stage 3 DEVELOPMENT OF FATIGUE	<ol style="list-style-type: none"> 1. <i>Nutrition.</i> 2. <i>Physical Activity.</i> 3. <i>Rest.</i> 	<ol style="list-style-type: none"> 1. <i>Cognition.</i> 2. <i>Affect.</i> 3. <i>Conation.</i>

(Same as in Stage No. 2, only worse.)

still the patient refused to do much about the situation; he just hoped that things would work out. He did try sedatives for a short period but stopped them when he didn't seem to rest much better at night. Also, upon a neighbor's suggestion, he took a bottle of vitamin capsules and thought he felt a little better for a time.

It was not long, however, before things took a sudden turn for the

worse. He began to have indigestion of a chronic sort that did not go away with usual home remedies. He tried changing his diet, he took some anti-acid tablets given him by a druggist, and occasionally laid off work to stay home and "rest up." Finally the stomach complaints became definitely disagreeable and his various household measures for counteracting the heart burn, gas, sour stomach and even some abdominal pains were not effective at all.

ORIGINAL ARTICLES

Believing now that he had found the cause for his fatigue, stomach trouble, he and his wife decided that a doctor should be consulted. To make a long story short, the physician found by clinical and x-ray exami-

nations that the man had a small early duodenal (peptic) ulcer with some hyperacidity. The physical and psychological factors which we have discussed could now be summarized as follows:

	PHYSICAL	PSYCHOLOGICAL
Stage 4	1. <i>Nutrition</i> — developed mild vitamin deficiencies, takes in too little protein, becomes overweight, anemia, etc.	1. <i>Cognition</i> — more bored with job, etc.
SIGNS OF A DEFINITE MEDICAL CONDITION	2. <i>Physical Activity</i> — becomes definitely sedentary and notices shortness of breath, asthmatic wheezes, spastic bowel, etc.	2. <i>Affect</i> — progressively more fearful re job and tenure.
	3. <i>Rest</i> — sleeps poorly and awakens tired and irritable, etc.	3. <i>Conation</i> — less and less desire or volition to do well at the job, etc.

The over-all management of the case included the following steps: (a) First of all, the patient was started on standard medical therapy for the peptic ulcer condition. He followed medical instructions well and the symptoms disappeared within two weeks, and by x-ray the ulcer crater healed over by the end of six weeks of treatment. Medical measures were progressively reduced, and after three months were stopped. Hereafter, the medical instructions related primarily to diet and general hygienic habit reorganization (more sleep, gradual resumption of physical activity, etc.).

(b) Realizing that the patient's trouble stemmed primarily from the fact that his job bored him and did not use his basic talents, the man

was sent to the *Personnel Institute* in Chicago for thorough aptitude and psychological testing. The doctor had given the man a preliminary psychiatric screening using the Minnesota Multiphasic Personality Inventory and found (as did the Personnel Institute tests of a similar sort) that the man was perfectly normal in his psychological make-up and devoid of any signs of neurosis. The Personnel Institute tests revealed that the patient had special ability in routine business types of work and they advised that he switch jobs.

(c) At this stage, the patient was asked to put his whole case before the Personnel Manager of the factory in which he worked. This executive was so impressed with the man's previous efforts to find the cause of

ORIGINAL ARTICLES

his trouble that he promptly agreed to shift him to the business office at no loss in salary. Immediately, the patient began to feel more cheerful, and he found the work interesting and decided that this sort of activity held the right future for him.

(d) Next, the doctor talked the patient into starting night classes at a local university extension center. During this time the man worked at the factory by day in the office job and attended night school in off hours. He had to "hump" to find time for study, but he made the grade and got good marks at school. He did so well at night school that after six months there he was offered another job at half-time which paid as much as the full-time factory job. The big advantage was that he now had every afternoon for study. With pushing by the doctor, and much loving encouragement by the wife, the man kept working and going to school for the next two years.

(e) Eventually he completed his business training and received the C.P.A. award. By this time the couple had their first baby and had developed an extremely happy home life. Their confidence in their future was firmly established and never lost. Upon graduation the patient was offered (and accepted) a full-time job as office manager in a new factory at a substantial salary. Need-

less to say, medical treatment had stopped many months before. The man never had a return of his fatigue or gastrointestinal symptoms.

The lesson to get from this case review is that unless the fatigue state is recognized and stopped by Stage 3, a vicious cycle is established. The worse the fatigue, the earlier will physical symptoms likely develop; the worse the physical symptoms, the worse the fatigue; etc. Repetition of the various stages occurs, and each stage becomes worse with every cyclic return. If this cyclic course continues without interruption and treatment, some people eventually "break." Then, they may have a mild nervous breakdown, or quit or lose their job. In severe cases sometimes hospitalization is required to handle the acute mental phases of the illness.

Conclusion

The proper recognition and treatment of chronic fatigue in the so-called normal adult population is recognized as one of the clinical problems of growing importance in modern society. Correct handling of these cases is possible and practical, and satisfactory results can be obtained in most instances with reasonable effort on the part of the practitioner. One scheme of the likely stages in the chronological development of the chronic fatigue picture is presented and illustrated.

SIDE GLANCES at the HISTORY OF MEDICINE **HEARTBURN**

According to H. I. Goldstein (J.A.M.A. 5:293, January 29, 1949), Diocles (350 B.C.) described heartburn as "'acid', 'acid' and painful eructations". Galen (130-201 A.D.) quoted Diocles. Sir Gilbert Blane (1749-1834), a naval physician, on March 1, 1796 discussed the subject and advised treatment with milk of magnesia, mild alkalies and calcareous earths.

Roentgen Therapy in Malignant Disease

By WADE S. RIZK, M.D.

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Soon after its discovery, practically every new physical agent has been employed in an attempt to destroy malignant disease. The roentgen ray is no exception. Late in December 1895, Wilhelm Conrad Roentgen, Professor of Physics in Wurtzburg, Germany, announced the discovery of a "new kind of light."¹ One month later, in Chicago, roentgen rays were first used for therapeutic purposes when a layman, at the suggestion of a physician, treated a cancer of the breast with this new agent. Many scientific investigators promptly sought to establish the therapeutic properties of these rays, believed at first to be a form of sunlight. Their biologic effect on hair follicles, the skin and the conjunctiva was observed very early and led at once to their use in the treatment of superficial lesions.

The deleterious effects of the new ray were recognized earlier than is generally supposed. An engineer, Elihu Thompson, of Boston, in 1896 first directed attention to the skin damage in his own skin from exposure to the roentgen ray, in a paper that appeared in an engineering publication. This knowledge was not appreciated by physicians in general, however, until 1900, when Codman collected a large series of cases of radiation injury, in many of which the damage was of advanced degree.

A steady advance in knowledge and in the therapeutic use of the roentgen ray was thus well under way by the turn of the century, con-

tingent largely upon data supplied by the physicist as well as the biologist. Within a decade every malignant disease and many nonmalignant diseases had been treated by this method. Accumulating knowledge of the factors governing the absorption of radiation brought appreciation of the advantages of very short wave lengths, and eventually some knowledge of the factors required to produce the required biologic effects, included in the concept of dosage.

The adoption of a unit of dosage, the roentgen, by the Congress of Radiology in Stockholm in 1929 was a great step for uniformity of expression and duplication of dosage by the clinical radiologist. The roentgen (r) is defined as "the unit of x-ray dose in which the quantity of x- or gamma-radiation is such that the associated corpuscular emission per 0.001293 Gm. of air produces, in air, ions carrying one electrostatic unit of quantity of electricity of either sign.

Biologic Effect of Radiation

The radiosensitivity of a tumor determines the effect of the roentgen ray upon it. The general concept of radiosensitivity of tissue is in effect that it "is proportional to its reproductive capacity and its degree of differentiation,"¹ the more undifferentiated, the more radiosensitive. The belief that ionizing rays have a selective and specific effect upon malignant tumors is erroneous. Because of their anaplastic character, many malignant tumors respond in some instances to a greater degree than do the tissues of the tumor bed, but evidence of selective effect

of radiation upon abnormal tissue is lacking. A general parallelism exists, however, in the radiosensitivity of a tumor and that of the normal tissue from which it derives or which it resembles.

The direct effect upon the tumor interferes in many ways with the life of the cell, varying from minor disturbances of form and function to death of the cell through interference with its reproductive abilities. Neoplastic cells appear to lack the same ability to recover from radiation damage that normal tissues possess.

Also, the radiocurability of a tumor, with its cells of highly undifferentiated structure, apparently has to do with its capacity to resume under the influence of radiation the lost function of differentiation. This postulation is borne out microscopically in specimens of tumors treated with roentgen rays for with progression of radiation not only do the tumor cells deteriorate and disappear but, in addition, the number of well differentiated cells among those remaining increases, particularly in radiocurable tumors.

Since tumors *in vitro* tolerate much greater amounts of radiation than those *in vivo*, some other effect must be a factor, probably the effect of radiation upon the host, or tumor bed. The profound changes effected by radiation in the normal tissue surrounding the tumor may cause it to starve and become incarcerated; if not completely destroyed, it may remain hemmed in by the scar barrier and thus inactive, making possible the beneficial effects of palliative radiation.

Common Uses of Roentgen Therapy

Overenthusiasm for radiation therapy, as for all new methods of treatment, was doomed to disappointment. The high promise held out for

it has been realized only partially. This incomplete fulfillment of expectations applies as well to radium and isotope therapy. The therapeutic employment of the roentgen ray in malignant disease for half a century, however, has resulted in a fairly clear conception of its fields of greatest usefulness. The list is too long to permit in this brief presentation enumeration of all of the malignant diseases for which radiation therapy is used. Some of the common and most important uses will be mentioned.

In malignant tumors of the brain and brain stem, radiation therapy has a prominent role in control. Treatment in most cases of this type must remain primarily surgical. Roentgen therapy may be effective, however, in prolonging the duration of useful life as a supplemental therapeutic measure to surgery, or when surgery is not feasible.²

Cancer of the maxillary antrum is a problem for both the surgeon and the radiologist. Intensive roentgen irradiation may follow surgical procedures. Primary neoplasms of the nasopharynx may respond to roentgen radiation followed by intracavitary radium application.³

Cancer of the skin is one of the malignant diseases in which excellent results are obtained.⁴ Epidermoid carcinoma of all types is readily amenable to roentgen therapy. The usual squamous cell and basal cell carcinomas of the face and oral carcinomas are generally treated effectively by roentgen therapy, radium therapy or surgical procedures; or a combination of these methods is often used to advantage. As emphasized by Widmann,⁵ cancer of the lip may now be considered a radiologic problem. In his experience, results were equally good with

ORIGINAL ARTICLES

roentgen rays or radium and indicated a possible curability of 83 per cent for all types of early and advanced malignant lesions of the lip.

Another epidermoid cancer with which excellent results have been obtained is carcinoma of the larynx. Here the results are among the best for cancer in any location. Lenz⁶ concluded that roentgen therapy in early cancer of the cords gives as high a rate of cure and a better voice than laryngofissure and recommended it in all malignant lesions of the vocal cord except when the cancer has extended subglottically or into the arytenoid cartilage. Laryngectomy is then to be preferred, followed by roentgen therapy if necessary.

Still another type of epidermoid carcinoma which is effectively treated by a combination of roentgen ray and radium therapy, or either alone, is carcinoma of the cervix uteri. While some surgeons prefer to rely wholly on surgical procedures in the eradication of this type of cancer, the majority of gynecologists continue to believe that external roentgen therapy used in combination with intracavitary radiation therapy, either roentgen ray or radium, offers the best method of control and cure.⁷ Hunt,⁸ discussing the response of cervical carcinoma to fractionated radium and roentgen therapy administered concurrently, concluded from analysis of his series of cases that this therapy compares favorably with the best results achieved by radical hysterectomy. Unfortunately, patients with Stage III and Stage IV cervical carcinoma are too often the only ones referred by some clinicians to the radiotherapist for treatment. It is in patients with Stages I and II of the disease that a high percentage of cures is obtained. The clinical end

results following irradiation of cervical carcinoma in their series impressed Murphy and Reinhard⁹ with the advantage of 1,000-kv. over 200-kv. radiation, especially in the case of a large pelvis.

Carcinoma of the body of the uterus is much less sensitive to radiation than that of the cervix. In this type of case, surgery in combination with the application of radium preoperatively offers perhaps the best chance of cure.

Ovarian carcinoma is conceded to be a surgical problem. Many of the complications of this disease, however, including late metastatic involvement, are treated to advantage with roentgen therapy as a palliative measure.

Opinions differ as to the best method of treating malignant lymphomas, including Hodgkin's disease, lymphosarcomas and leukemias, but it is generally recognized that radiation therapy offers the best route of palliation. In early Hodgkin's disease, so-called unicentric Hodgkin's disease, for example, intensive roentgen therapy may offer a chance of cure, although this result has rarely been achieved.¹⁰ Every experienced radiotherapist, however, has seen several cases of this disease in which the patient has been carried along under treatment for ten or more years. The usual method of treatment is to give small palliative doses as indicated.^{11 12}

In pediatric roentgenology, Wilms' tumor and neuroblastoma are the commonest malignant growths encountered. Roentgen therapy in these conditions as a supplemental method of treatment to surgery, when indicated, offers better results than surgery alone. Goddard,¹³ in his analysis of all cases of Wilms' tumor treated at Duke Hospital over a period of eighteen years, stated

ORIGINAL ARTICLES

that roentgen therapy is employed routinely there both postoperatively and in most inoperable cases, and also preoperatively in selected cases when the tumor is too large to remove without definitely increasing the operative risk.

These are but a few of the many uses of roentgen therapy in the treatment of malignant disease. As the knowledge of the relative biologic effectiveness of the different types of radiation continues to grow, these uses will doubtless greatly increase in number and yield progressively better results.

The Future

The unparalleled progress of radiology during the last fifty years gives promise of far greater achievements during the second half of the present century. The results of cancer therapy today leave much to be desired. With proper use of present knowledge and facilities, however, it is estimated that at least 100,000 persons annually may be spared a cancer death. The best way to treat cancer remains of course to discover it early enough to make effective the available therapeutic measures. Heavy responsibility devolves upon the general practitioner here for he sees the patient first. With the radiologist, after the family doctor, lies more opportunity for effective control of malignant disease than with any other specialist. He comes in contact with more cancer in the living patient than any of his colleagues in other fields of medicine. Ever on the alert to discover malignant neoplasms through diagnostic radiology, he now faces new avenues ahead in radiation therapy as he shoulders his full share of responsibility in cancer control. The advances of the physicists have opened to him a range of energies previously inconceivable.

With the synchrotron, he now has seventy million volts within his reach, leaving almost no limit to the types of energy he can apply.

A number of the medical centers in the country now have access to equipment for rendering supervoltage roentgen therapy. The far reaching results with this method have not been completely probed as yet, but it offers a new approach to many of the diseases which have been ineffectually treated with the standard roentgen methods. The experience in this field is still limited, but the results hold promise for some of the more inaccessible malignant tumors. The principal advantage of this form of roentgen therapy is the increased penetrability which may be used to destroy radiosensitive tumors deep in the body without causing a corresponding damage to the skin.¹⁴

With the recent development of radioactive isotopes, the possibility of effective selective internal radiation presents itself. These radioactive materials hold great attraction for the medical profession, and it behooves the radiologist to keep abreast of progress in this field for his fellow physicians undoubtedly regard him as the exponent and practitioner of all things medical that have radioactive properties. As yet, however, he has little obligation from a clinical standpoint to undertake their use.

The cancer problem is by no means insoluble. As present knowledge is more fully utilized, as research continues to provide new approaches, as methods of diagnosis and of therapy are increasingly perfected, one can readily visualize transition to the time when failure will be supplanted by cure in the vast majority of cases. Meanwhile, although cancer can be eradicated

ORIGINAL ARTICLES

by surgical intervention, radiation therapy, or a combined technic in a gratifying percentage of its early and occasionally of its advanced manifestations, cure should not be confused with control. Many physicians as well as patients believe that the five year goal means freedom from follow-up examinations. After long periods of quiescence, however, reactivation may occur. If the patient with cancer is to profit by treatment, a common sense attitude on

the part of the patient, the family physician, the surgeon and the radiologist points to a recheck examination at least once a year for life.

Summary

The early history of roentgen therapy and the biologic effect of radiation are briefly reviewed. Mention is made of some of the common uses of roentgen therapy today, and its potential role in the future is discussed.

Prognosis

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Medical art and science branch out in four directions: prevention, diagnosis, prognosis and therapy. Three of these branches are well rooted in rather exact scientific grounds. Diagnosis, for instance, rests on the evidences furnished by anatomy, physiology, pathology, biochemistry, physics, radiology, toxicology, serology and psychology. Therapy is based on pharmacology, immunology, physics, climatology, and a great number of techniques developed experimentally or clinically in the course of many centuries. Medical prognosis, however, has not had, as yet, such a firm and broad scientific foundation as the other branches of medicine. This is the more astonishing as, from a scientific viewpoint, prognosis is the practical purpose and the very scientific center of the art of healing. What we wish to accomplish with prevention, diagnosis and treatment, is the possibility to predict how a

group of patients or an individual patient may react in the future to the same or other morbid stimuli. The important rôle of prognosis within medicine as a science can be derived also from the general definition of science as it has emerged within the last few decades and as it has been aptly expressed by Lecomte du Noüy: "The aim of science is to foresee, and not as often as has been said, to understand. Science describes facts, objectively and minutely, and tries to join them together by what we call laws, so as to be able to predict events in the future . . . Our human laws are the expression of our confidence in the order of nature and in the identity of the reactions of all men to the same excitations . . . In brief, they can be described in the following manner: when we have experimentally observed that certain definite conditions are always followed by certain phenomena which seem to be in variably linked to the first by a relation of cause to effect, we word this observation in such a way that it enables us to predict these phenomena quan-

ORIGINAL ARTICLES

tatively and qualitatively whenever the same conditions are present."

The difficulty of a methodical approach to prognosis must be seen in the fact that there are fundamentally two divergent issues in prognosis. One is the statistical evaluation of a great number of observations and the employment of the calculus of probability; the other is concerned with the individual case for which is valid what Emil Borel has stated: "Neither common sense nor calculations can insure us against misfortune, and it will always be a meager consolation for an individual to think that the probability of misfortune was slight when he is the one to suffer from it."

In order to explain first the statistical approach, we follow Danziger when he states that medical prognosis like other attempts to predict the future must consist of statements of probabilities. For example, we say "The chance of recovery by a specified patient from a particular disease within a certain time is some fraction between 0 (impossibility) and unity (certainty). The value of the fraction will depend on several variables, especially the nature of the illness, the general condition of the patient, the existing state of medical knowledge, the extent to which this knowledge is available to the physician, and the technical resources at the physician's disposal". These variables, however, are only a demonstration of additional difficulties with which the problems or prognosis are fraught. In order to gain reasonably reliable results, we have to obey the principles of statistics which are, 1), the law of the great numbers, 2), the selection of a homogeneous group and, 3), the symmetry of the observed population. It is quite obvious that all three fundamental suppositions of

statistics are difficult to fulfill in the medical situation. A sufficiently great number, in which the statistical error can be avoided, of a homogeneous group (for instance, as to age, duration of illness, race, constitution, type of disease, type of treatment, etc.) and of a symmetrical distribution (for instance, with respect to the distribution of responses to given stimuli) can rarely be obtained in practical observations of pathological groups; it follows that statistical data even when collected and evaluated as meticulously as possible, according to the just described principles, are still far from being ideal and completely reliable, not to speak of those statistical conclusions—as they are legion in clinical expositions—which in no way meet the necessary premises of scientific statistical methods so that their results frequently are entirely unreliable and fallacious. Statistics are not the main tool for the prognosis in groups although they are the indispensable presupposition. The essential method is the calculus of probability, a mathematical procedure which shall not be described here but the knowledge of which is necessary in order to avoid badly misleading mistakes.

In the beginning of this paper we have quoted Emil Borel, in order to show forth that even the greatest perfection of statistical methods and the application of probability calculations will afford not more than the clarification of certain future trends in the manifestation of disease in a sufficiently large population. It is certainly most interesting to know that statistical evaluation of pulmonary tuberculosis in this country has shown that the mortality rate in the last 50 years has diminished from 200 to less than 30 per 100,000 population.

ORIGINAL ARTICLES

We can foretell—with some reservations—on the basis of these figures, in using probability calculations, in which way the mortality rate of tuberculosis in the population may still decrease in decades ahead. This, however, has no specific meaning for the individual case. We are not able to say, considering an individual case of pulmonary tuberculosis, whether he may belong with those 170 fortunate in the unit of 100,000 population who now survive or whether he may belong with the 30 still unfortunates who are doomed. The great problem of prognosis lies in the fact that group statistics are not applicable to the prognosis of individual cases. They have at best indirect importance. And yet, the practitioner in his daily work is constantly confronted with the question of prognosis of the individual case as one of his main tasks. It is true that personal experience is invaluable. It is, however, a non-scientific approach; it cannot be generalized and employed beyond the personal field of activity. Recently some attempts have been made to develop methods of individual prognosis. Particularly, we call attention to an ingenious approach of A. C. Guyton, who in a paper in the *Archives of Internal Medicine* (1:27, 1949) dealt with the prognosis of muscular paralysis in poliomyelitis.

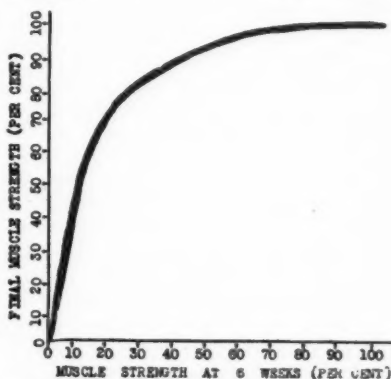
"The ultimate state of recovery would depend directly on the amount of strength remaining in the paralyzed muscles at approximately six weeks. In making these predictions, however, one must determine whether or not each muscle is paralyzed diffusely or in a spotty fashion, for muscles with areas of spotty total paralysis show little or no recovery in these areas, making one's prediction for the muscle as a whole inaccurate. A formula expressing the final recovery, in percentage of nor-

mal, in terms of the six weeks status of the muscles may be expressed as follows:

$$L + \frac{100-L}{100} \times \frac{10L}{1+9L}$$

100

"L equals strength of muscle at six weeks expressed in percentage of normal. This formula was derived from experimental evidence that arborization of an axon can occur sufficiently to produce at least five times as many nerve endings as it normally has and twofold hypertrophy may further strengthen the muscle.



Formula expressing final recovery in terms of 6 weeks status of the muscles.

"The accompanying figure shows the formula graphically from which is predicted that a muscle with 10 per cent normal at six weeks will recover to a final state of approximately 57 per cent normal whereas a muscle with 40 per cent normal will attain approximately 92 per cent normality. It follows that most muscles which have no more than 60 per cent paralysis will return practically to normal."

There have been more attempts at finding methods for the prognosis

ORIGINAL ARTICLES

of special syndromes. At random we mention just two: P. M. West and J. Hilliard (Ann. West. Med. & Surg. 3:228, 1949) report on proteolytic enzyme inhibitors in the blood of cancer patients for predicting the effectiveness of cancer treatment; G. Laroche and J. Tremolières (Presse méd., 57:40, 1949) contended that size, nature, and color of a skin lesion formed by intradermal injection of 0.05cc. of a one percent solution of mercuric cyanide reflect the patient's general physical condition as to the prognosis of an operative risk. Extent and induration of the lesion increased with a poor nutritional and functional state and with old age.

One can presently infer from these quotations that it might be possible to develop methods of individual prognosis which may have the same degree of probability as the statistical approach offers to the problem of prognosis of groups. Another author, D. I. Malamud, has tried to open a way for individual prognosis in a more general manner. He lists five procedures for the establishment of a system in which the capacity for improvement should be judged according to a numerically graded evaluation of the total complex of factors which have significant relation to prognosis. These procedures are:

- 1) A minimum number of clearly defined qualitative components or dimensions of abnormality
- 2) Measurement of these components by objective tests
- 3) Measurement of each component for analysis of clinical status
- 4) Description of capacity for spontaneous improvement by cross-sectional patternings of the same component strengths
- 5) Description of clinical improve-

ment in terms of longitudinal changes in these patterns.

A very vivid example of the dilemma in which prognosis finds itself, is a report by Hobert H. Reiman (we have cited this quotation elsewhere already in a similar connection) on a paper by J. C. Snyder et al. on "Further Report on the Treatment of Typhus with Paraminobenzoic Acid in Ann. Med. 27:1, July, 1947": "Further report on the treatment of typhus with para-aminobenzoic acid shows the results of therapy to shorten the disease and lower the mortality rate, but when mathematical methods must be used to show 'statistical significance', the agent is not as effective as it was hoped."

Summarizing, it may be said that on the basis of the principles of statistics and in applying the calculus of probability there are definite scientific methods of prognosis in sufficiently large, sufficiently homogeneous, and symmetric groups to predict course and outcome of pathological reactions with a high degree of probability within these or similar groups. Considering prognosis of the individual case, there are only beginnings in development of scientific methods. These beginnings, however, show that this development of appropriate methods is practicable. It is a real challenge to medical research to take up this subject in order to bring prognosis on a scientifically equal level with diagnosis, treatment and prevention.

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Some Aspects of the Therapy of Various Painful States

By E. M. PAPPER, M.D.

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The treatment of patients with pain is the province of every physician in all specialties and in general practice. However, it is to the practitioner who is responsible for the care of patients rather than the specialist that the problem of control of pain is most important and sometimes very difficult. He is required to do something definite or refer the sufferer for specialized help. It is not sufficient in practical terms to achieve a brilliant diagnosis if the presenting symptom of pain persists.

For this purpose, since chronic pain is an important reason for consulting the practitioner, it is useful to consider pain as a disease entity rather than the symptom of disease to more intelligently plan an attack which can relieve the sufferer. This plan is not offered as a substitute for accurate diagnosis of lesions responsible for pain, but as a practical guide to therapy based upon cogent concepts of the initiation and propagation of the pain experience. The first important principle the practitioner must accept is that pain is not necessary for a suitable biological adjustment and that it must not be treated routinely or sentimentally with potent narcotics which may inflict greater harm upon the patient than the benefit conferred by the elimination of pain awareness.

An approach to the therapy of pain may be based upon three basic

methods of organization:—the etiology, the quality of pain, and the reaction pattern to pain.

From the standpoint of etiology, most painful conditions can be conveniently grouped into several broad categories which serve the purpose of focussing upon the proper means of treatment.

1. *Organic tissue change*—associated with infection, trauma, or neoplasm.
2. *Lesions involving the nervous pathways which conduct pain*—the neuralgias and neuritides.
3. *Lesions associated with smooth muscle spasm*—the digestive, urinary or circulatory systems.
4. *Psychic or emotogenic type of pain.*

The second method of aid in the localization of the point of origin of pain is its quality. In general, pain which is burning, sharp, itching or stabbing is superficial or somatic in origin and is associated with a clear cut active response on the part of the patient. This is the response of the patient with toothache, pruritus (regardless of etiology) and superficial trauma. The patient either wishes to have an offending part removed or repaired or wishes to remove himself from the injuring environment.

The other type of pain usually originates from deep visceral structures. It is aching, gnawing or throbbing in character and produces a response of inaction and withdrawal on the part of the patient. The victim desires to be left alone and is

ORIGINAL ARTICLES

interested in being undisturbed. The inflammatory lesions of the gastrointestinal tract are examples of this quality of pain. Although individual personality traits influence the patient's response to pain, these qualities of pain will furnish some help in ascertaining the origin of difficulty.

The third principle of the management of pain is an appreciation of the concept of pain threshold. The point at issue is that there is an appreciation of pain in response to certain stimuli which is in direct proportion to the intensity of the stimulus. Although some investigators consider the threshold to pain a fairly constant phenomenon, the practitioner will recognize the fact that there is considerable variation in pain tolerance in different individuals and even in the same individual at different times. Stated other wise, it is well known that some people can tolerate more pain than others and that this difference is concerned with emotional and personality factors.

However, despite individual responses, these are events which modify the pain threshold and hence the comfort of the patient. The persistence of a painful lesion for long periods of time decreases the threshold to pain, i.e. diminishes the patient's ability to tolerate pain. Psychological factors are of utmost importance. The excitement of competitive sport, combat, certain religious practices, and sexual exhilaration are capable of blunting the perception of pain. It is not unusual to discover a fracture in an athlete some time after the injury has occurred rather than immediately after sustaining the disabling blow. It is suggested that these influences in greatly modified form can be utilized

in the therapy of painful states by producing constructive distraction.

Finally, pain threshold may be influenced by drugs—a very important application to clinical medicine. Analgesic and narcotic drugs raise pain threshold and if used properly to minimize their side effects, e.g. respiratory depression and addiction, much comfort can be furnished patients with pain.

The therapeutic attack upon pain as a disease should follow systematically along one or more of several directions, based on the principles previously described.

1. Abolition of the Pain Stimulus

This is the most obvious approach to the therapy of pain and should be the first method if at all possible. It is really unnecessary to elaborate this point further since the elimination of the source of pain is almost axiomatic. However, it requires mention because the busy practitioner may have a tendency to resort to potent analgesic drugs or even more radical measures without executing the simpler and more effective things first.

2. Interruption of Pain Pathways

Many patients with pain can be relieved of their symptoms, but rarely of the underlying disease by the elimination of pain pathways surgically or chemically in the form of nerve block. The practitioner must remember that these procedures are palliative in the sense that they frequently make patients comfortable, but do not effect a cure of the cause of pain. Because nerve block and surgical section of pain pathways are often difficult technically, requiring specialist training and are fraught with the possibility of serious complications, it is wis-

ORIGINAL ARTICLES

to seek the aid of the neurosurgeon, the general surgeon and the anesthesiologist for their performance except when the practitioner has

had special training in these fields. A list of lesions which may be treated by nerve block or nerve section is presented for guidance.

<i>Disease</i>	<i>Therapy</i>
1. Headache (referred from indurated nodules)	Trigger point injection (procaine 1%)
2. Tic douloureux (V or IX nerve)	Alcohol block of appropriate branch of X or IX nerve; Gasserian Ganglion or Glossopharyngeal Section
3. Neuralgias (any nerve)	Appropriate nerve block (procaine 1 or 2%)
4. Carcinoma (non-removable)	Alcohol block of nerve supply Intrathecal alcohol Chordotomy Pre-frontal lobotomy
5. Myositis	Trigger point injection (procaine 1%)
6. Spasmodic torticollis	Neck muscle infiltration (procaine 1%)
7. Scalenus anticus syndrome	Scalenus anticus infiltration (procaine 1%) Scalenus anticus section Cervical rib resection
8. Shoulder pain	
a. Shoulder-hand syndrome	Brachial plexus or Stellate ganglion block (procaine 1%)
b. Subdeltoid bursitis	Suprascapular nerve block (procaine 2%)
c. Periarthritis (frozen shoulder)	Brachial plexus and Trigger points (procaine 1%)
d. Post coronary occlusion pain	Trigger points (procaine 1%)
9. Angina pectoris	Thoracic sympathetic block (alcohol) Thoracic sympathectomy Pericoronary neurectomy
10. Herpes Zoster	Block of affected nerves (procaine 1%)
11. Pancreatitis	Splanchnic block (procaine 0.5%) Splanchnicectomy
12. Low back pain	Trigger points Epidural (caudal) block Sciatic block } (procaine 1%)

ORIGINAL ARTICLES

<i>Disease</i>	<i>Therapy</i>
13. Coccydynia	Peri-coccygeal infiltration (procaine 1%) Coccygeal resection
14. Causalgia	Sympathetic nerve block (procaine 1%) Sympathectomy Pre-frontal lobotomy Topectomy
15. Phantom limb pain	Sympathetic nerve block Sympathectomy Partial cerebral cortical resection
16. Amputation stump pain	Trigger point injection Sciatic and femoral nerve block Stump revision Chordotomy
17. Painful hip	Obturator nerve block (procaine 1%) Obturator nerve resection Intrathecal alcohol Chordotomy
18. Meralgia paresthetica	Lateral femoral cutaneous nerve block (procaine 1%) Resection of lateral femoral cutaneous nerve
19. Adiposa dolorosa	Fat pad injection (procaine 1%)
20. Tabes dorsalis	Chordotomy and Sympathectomy
21. Sprains	Trigger point injection (procaine 1%)
22. Peripheral vascular disease	
a. Arteriosclerosis severe	Peripheral nerve crush (Sympathectomy contraindicated)
b. Diabetic ulceration	Sympathetic nerve block (procaine 1%) Sympathectomy (contraindicated in gangrene)
c. Thrombo-angiitis obliterans	Sympathectomy if vasospasm is proved by sympathetic block
d. Raynaud's Syndrome	Peripheral nerve crush for rest pain Sympathetic block prior to Sympathectomy
e. Embolus	Sympathetic nerve block (procaine 1%) Embolectomy
f. Thrombophlebitis	Sympathetic nerve block (procaine 1%)
g. Traumatic vasospasm	Sympathetic nerve block (procaine 1%)

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ORIGINAL ARTICLES

3. Raising of the Pain Threshold

This is the most common method of pain therapy in actual practice and consists in the use of morphine or morphine derivatives and substitutes. It should be noted that these drugs have serious drawbacks and limitations. They should be used sparingly, in small dosage, and preferably where the other methods of pain therapy are not applicable or have failed.

4. Modification of the Reaction Pattern

Since it is not unusual that an important part of the patient's discomfort in painful lesions is due to his response to that pain, it is frequently possible to promote well being by modifying his attitude toward the disease or injury.

Attempts to minimize or abolish the emotional overtones associated with pain are definitely useful therapeutic measures. The response to pain may be stereotyped and subject to influences other than drugs alone. There are many psychological aids which can be of enormous comfort to the patient suffering from pain. Clear insight into the nature of the problem may be a great advantage to patients and make it possible to eliminate the unhappy reactions to pain which are associated with fear and insecurity. Sympathy, kindness and sincere humanitarian values are of real significance in promoting improvement and well being of the patient in pain. This, in fact, is the probably explanation for the success of the placebo—the faith the patient has in his physician. The efficiency of the placebo is real if one considers that fully one-third of patients studied with regard to the potency of new analgesic drugs will exhibit pain relief as satisfactory following

a placebo as the active drug itself provides.

The reaction pattern may be modified by drugs and the opiates have probably enjoyed the greatest success in this sphere. It is difficult to evaluate these effects quantitatively, but it has been demonstrated that the sense of well-being precedes the analgesic effect of morphine and outlasts it. Essentially, the principle is one of allaying anxiety and apprehension. Alcohol has a similar effect when large doses are administered orally. Scopolamine is a valuable adjunct to opiate medication in that it serves well to reduce the psychic trauma of pain and other unpleasant situations. It definitely alters the reaction pattern almost to the point of unreality in the sense that the patient experiences a greater sense of euphoria than the situation warrants. It has been observed also that small doses of the barbiturates are effective in controlling traumatic pain in instances where morphine had not been completely satisfactory. Since the barbiturates have no analgesic properties, it seems likely that their beneficial effect upon pain must be associated with some modification of the central perception of pain.

5. Specific Remedies

In addition, there are some specific remedies directed toward specific types of pain. Drugs such as curare reduce painful muscle spasms in poliomyelitis and ergotamine may overcome the dilating pulsations of cranial vessels in migraine. Colchicine is useful in gout and the salicylates in rheumatic fever and many different types of pain. Nitroglycerin is of great value in the pain of angina. Cobra venom has a definite place in the therapy of a variety of painful syndromes. Other specific remedies will occur to the alert physician.

Is There Any Relationship Between Acute Appendicitis and Contagious Diseases?

By IRVING SILVERMAN, M.D.

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Burnett¹ states that measles, varicella, scarlet fever etc. may cause appendicitis by obstructing the appendiceal lumen due to lymphoid hyperplasia. Ladd and Gross² felt that "appendicitis may occur at any time during the acute exanthemata of childhood, particularly measles." This opinion was corroborated by the experiences of Babcock³ and Brandman who considered appendicitis an important complication of scarlet fever.

Appendicitis as a complication of measles may be observed from five days before the rash to four days after its appearance. Among 15,354 cases of measles admitted to the Willard Parker Hospital for Contagious Diseases within a ten year period there were 35 cases of appendicitis (0.23%). Considering this incidence rate it may seem there is only a chance relationship between these two impairments. It has been demonstrated that the female appendix contains less lymphatic tissue than the male appendix throughout life. In Ladd and Gross' series of appendicitis without contagion 54% of the patients were males and 46% females. In view of the fact that measles cause a moderate hyperplasia of the lymphoid tissue throughout the body, it is interesting that there was a marked preponderance of males over females in the Willard Parker measles series. Another reason for the impact of mea-

sles on the appendix is the finding of Warthin-Finkledey giant cells in the appendix. These cells are generally recognized as a specific reaction to the measles virus or toxin in the prodromal state of the disease. A third evidence is the finding of inclusion bodies in this organ.

As to whooping cough there were only three appendicitis cases among 4,283 patients admitted because of pertussis within a ten year period. All these cases occurred in the sixth week. The same number of appendicitis cases were observed by Lawrence and Waring in an undisclosed number of rubella patients while only one case in 816 was found at the Willard Parker Hospital. Regards chicken pox 13 cases were recorded among 6,110 patients admitted for this disease. As to mumps, Dick reported an increase in incidence of appendicitis during mumps epidemics. Rosenow and Dunlap even mentioned 8 appendicitis cases occurring at a school where there were 32 cases of mumps. Yet, none of the patients had both diseases. Yet, when streptococci cultured from a removed appendix were inoculated in rabbits, parotitis resulted in four cases. This finding, however, is in discrepancy with the fact that a virus is believed to be responsible for epidemic parotitis. Considering scarlet fever, Lawrence and Waring found 23 cases of appendicitis among 12,192 scarlet fever patients (0.2%). Toomey reported 9 in 6,000 (.15%). In the Willard Parker Hospital, the corresponding figures were 9 in 9,679 patients (0.09%). Infections of the upper respiratory tract, finally

ORIGINAL ARTICLES

were found in 16% of appendicitis cases by Scott and Ware. The close connection between the incidence rate of appendicitis and upper respiratory infections has been stressed by various authors (Hudson and Chamberlain, Ladd and Gross, Breneman).

In spite of the presented figures there is no significant statistical evidence that there is a causal connection of contagious diseases and appendicitis. While a coincidence may be explained in some cases by the facts that e.g. in measles, mumps, and scarlet fever appendicitis may have been indirectly caused by the same virus, it cannot be overlooked that the statistical figures lie within the expected incidence rate of appendicitis irrespective of the co-existence of contagious diseases. It appears, however, that in some cases clinical connections can be construed in measles, chickenpox,

scarlet fever (?) and upper respiratory infections.

Literature: (1) W. E. Burnett. Textbook of Pediatrics, Mitchell-Nelson. W. B. Saunders Co., 1947. (2) W. E. Ladd and R. E. Gross. Abdominal Surgery of Infancy and Childhood. W. B. Saunders Co., 1941. (3) W. W. Babcock. Principles and Practice of Surgery. Lea and Febiger, 1944. K. B. Larence and G. W. Waring, Jr., New Engl. J. Med. 241:1, July, 1949. H. W. Scott, Jr., and C. Krakower. Arch. Surg. 50:258, 1945. E. C. Rosenow and S. I. Dunlap. J. Infect. Dis. 18:383, 1916. J. A. Toomey. Scarlet Fever. Breneman's Practice of Pediatrics. Vol. II. W. F. Prior Co., Inc., 1941. H. W. Hudson and J. W. Chamberlain. J. Pediat., 15:408, 1933. M. Goodman and I. Silverman. New Engl. J. Med. 228:533, 1943. J. G. M. Bullowa; E. J. McCage and S. M. Wishik. Am. J. Dis. Child, 53:1029, 1937.

CASE PRESENTATION

Paroxysmal Ventricular Tachycardia with Wolff-Parkinson-White Syndrome

Case of a 44-year-old male patient. The past medical history revealed attacks of migraine for many years and food allergy. At the age of 31 patient had his first attack of paroxysmal tachycardia following a heavy meal. Since that time attacks of tachycardia had been experienced by the patient in irregular intervals; it was conspicuous that they seemed to be precipitated by eating certain foods, especially chocolate or pickles. The patient had

been examined many times. Two different diagnoses had been made: 1) paroxysmal ventricular tachycardia, and 2) Wolff-Parkinson-White Syndrome. The tachycardic attack could be relieved by quinidine; if quinidine was not taken and if the attack would last for one or two hours it was accompanied by vomiting. The examination of the cardio-vascular system showed a pulse rate of 72 per minute; the blood pressure was 124/82 and 130/85 after exercise. The pulse rose to 102 after exercise but returned to the initial value after 1½ minutes. A systolic murmur could be heard near the sternum in the fifth interspace; it disappeared after exercise

CASE PRESENTATIONS

and, consistently also, after deep breathing. All laboratory tests were within normal limits. The electrocardiogram showed a shortened P-R interval and a prolonged QRS time.

One physician pointed out that the Wolff-Parkinson-White syndrome may be observed with no clear evidence of organic heart disease. On the other hand, there have been reports in the literature of patients with congenital heart disease. He also stated that attacks of paroxysmal tachycardia accompanying this syndrome are relatively rare. Another doctor stressed that he did not believe in a causative connection between the patient's allergy and paroxysmal tachycardia; he also emphasized that it would be essential to differentiate clearly between the auricular type of tachycardia which is assumed to be of benign character and the ventricular type which, in most cases, is associated with organic heart disease. This differential diagnostic point was underscored by another physician. He also stated that auricular paroxysmal tachycardia may occur in healthy individuals. In this form of tachycardia the heart beats are generally regular, while in the ventricular modification irregularity prevails. Physical and emotional strain, trauma toxic agents, infrequently hiatus hernia, and food allergy have been

mentioned as etiological factors. The auricular modification occurs about six times as frequently as the ventricular type. The electrocardiogram is the decisive diagnostic criterion whether ventricular or auricular tachycardia is present. In the ventricular form, after the attack, depression of the ST segment, negative T wave and lengthening of the Q-T interval are characteristic. While the combination of paroxysmal tachycardia with Wolff-Parkinson-White Syndrome is relatively rare, there are several papers in the literature reporting such combination. N. H. Boyer (New England J. Med. 234:111, 1946) found among 1,356 patients in an Army hospital seven cases of Wolff-Parkinson-White syndrome, 2 of which also had paroxysmal tachycardia. As to the mechanism of the Wolff-Parkinson-White Syndrome, there is no agreement. Many believe that it is due to accessory conducting fibers between auricles and ventricles.

(Lit.: H. McL. Davidson; F. R. Stearns; D. E. Yochem; J. H. Sanderlin. J. Ins. Med. 1:35, 1948-49; L. B. Smith. Am. Heart J. August 1946; L. Soldati. Foreign Letters. J.A.M.A. 10:901, July 3, 1948; R. J. Duthie. Brit. Heart J. 8:96, April 1946; R. J. Duthie; D. Littman and H. Tarnover. Am. Heart J. 32:1, July, 1946).

SIDE GLANCES at the HISTORY OF MEDICINE

URTICARIA

The first classical description of urticaria attributable to exposure to cold was published by Blachez (Observation d'urticaire. Bull. et mêm. Soc. méd. d. hôp. de Paris, 9:270 1872). However, H. Bourdon (Note sur l'urticaire intermittente. Bull. et mêm. Soc. méd. d. hôp. de Paris, 3: 259, 1866) had recognized this phenomenon first.

THERAPEUTIC SUGGESTIONS

Acute Renal Insufficiency

In early oliguria when the 24 hour urine output decreases below 600 cc. (frequent after operations, after blood transfusions, in shock, during pregnancy), transfusion of whole blood or of washed erythrocytes may restore the circulating blood volume and the blood pressure. Intravenous procaine or opiates may attenuate neurogenic implications. Fluid administration is important to compensate for fluid loss by vomiting, sweating and respiration; the fluids should be administered through an indwelling tube. Increasing diuresis should be taken into account in increasing the fluid intake correspondingly. Acidosis is counteracted by sodium bicarbonate, given orally, or by 1/6 molar sodium lactate in Ringer's solution, intravenously. Sodium chloride should be given after the urinary output begins to increase. In prolonged anuria, gastric lavage and intestinal perfusion are indicated. Peritoneal dialysis or artificial kidney can only be applied at a hospital. The food intake should be free of proteins, yet high in fat and carbohydrates. As to surgical procedures, renal sympathectomy may be beneficial in stimulating renal blood circulation. (F. Farman: H. L. Briskin and K. A. Lemon. J. Urol. 65:177, 1951).

Chicken Pox

Authors recommend protamide, a proteolytic enzyme. It is administered intramuscularly, one half to one ampule (0.6 to 1.3 cc.) at the onset of the eruption and is given once daily for two days. The eruption generally subsides within a week, malaise, fever, and itching also disappear. (H. W. Lehrer and H. G. Lehrer. Ohio State Med. J. 47:44, 1951)

Peripheral Vascular Disease

Author has checked several methods and drugs as to effectiveness in peripheral vascular disease. He comes to the conclusion that priscoline (Benzylimidazoline) is the drug of choice. "The single administration of intravenous Priscoline appeared to be quite effective in relieving the component of abnormal vasoconstriction associated with arteriosclerotic obliterative vascular disease. This agent was effective in releasing abnormal vasoconstrictor tone in vasospastic disorders. Priscoline is the most consistent and most effective vasodilator of several agent compared in the study." (Wm. J. Reedy, J. of Lab. & Clin. Med. 3:365, March 1951)

Purulent Meningitis

"The basic treatment of the patient with meningeal infection includes bed rest, good nursing, general supportive care, and adequate fluid intake. In the specific therapy of meningitis, the following agents are available: Antisera-meningococcal; pneumococcal; influenzal. Antitoxin-meningococcal. Chemotherapeutic agents: sulfanilamide; sulfapyridine; sulfapyrazine; sulfadiazine; sulfamerazine; gantrosan (gantrisin; NU 445; 3, 4 dimethyl-5-sulfanil-amido-isoxazole). Antibiotics-penicillin; streptomycin; aureomycin; chloromycetin; terramycin." Dosage: gantrosan, 0.1 Gm per kg body weight, parenterally, usually subcutaneously at time of admission, followed by 0.2 Gm. per Kg. body weight per day until the drug can be taken orally. Penicillin, up to 12 million units per day. Chloromycetin, 100 to 200 mgms per kg. body weight in 24 hours, by gavage, until tolerated orally. (Blattner. Rocky Mountain Med. J. 5:339 May 1951)

THERAPEUTIC SUGGESTIONS

Endometriosis

A young woman under 40 should be treated conservatively by saving as much ovarian tissue as possible. Surgical intervention will be necessary; yet, surgical sequelae are common due to adhesions and scarring. If the tubes are patent, subsequent pregnancy may occur when some ovarian tissue is preserved. Recurrence after this type of surgery is possible so that a second operation might become necessary. A woman near the menopause may wait until she has passed the climacterium. Hysterectomy and removal of all implants then is preferable to castration. If the bowels are involved, castrating doses of x-ray may often be helpful without surgery; otherwise, intestinal resection may be the operation of choice. Hormone therapy is frequently useful; androgens in the form of 25 to 50 mg. of testosterone propionate intramuscularly, three times a week, will lead to cessation of menstruation for one to three months. After return of the menses there might be a complete relief of symptoms or relapse. Unfortunately masculinization is a very frequent hazard together with acne. Endometriosis has a rather capricious course; in spite of implants it might become symptomless for a longer or shorter period. Therefore, not all symptom-free remissions can be attributed to the treatment, the effect of which is still rather uncertain. (Special Article, Endometriosis. Medical Times—5: 265, May, 1951).

Cortisone and ACTH

In a symposium at the Mayo Clinic (Proc. Staff Meet., Mayo Clin. 17: 476 Aug. 16, 1950), the experiences made, thus far, with these two hormones have been presented by the various departments. The experi-

ences were relatively satisfactory in rheumatoid arthritis; signs of hypercortisonism, such as edema, restlessness, depression, fullness of face and striae, were observed; after withdrawal of the hormones relapse occurred promptly or slowly. In rheumatic fever the hormones are capable of suppressing but not curing the rheumatic process; it is doubtful that they shorten the natural duration of the acute rheumatic episode; they do not prevent recurrences or modify chronic valvular damage. In Lupus Erythematosus, the hormones had prompt temporary effect; yet of seven patients three died and there were no fundamental changes in laboratory findings. In bronchial asthma, prompt relief was experienced but only during and immediately following administration of the hormones. In nephritis, cortisone produced beneficial effect with decrease of edema; however, when azotemia complicated edema, cortisone, by elevating nitrogen metabolism, increased the danger of uremia. In leukemia, of eighteen patients treated with both hormones three had complete remissions from three to six weeks; the other did not react. Side effects in form of psychosis were observed in four cases.

Poliomyelitis

Aureomycin and amigen were used intravenously in ordinary dosages in 6 patients with bulbar or cervical paralysis. Improvement began immediately and was fairly complete in 3 to 4 days. There was no respiratory paralysis or death. In 3 patients with lower limb paralysis, progression apparently stopped 48 hours after use of intravenous aureomycin and amigen. (J. J. Crowley and G. F. Jackson. Medical Times, 5:280, May 1951)

THERAPEUTIC SUGGESTIONS

Gout

Dr. Rice (Eli Lilly Compnay) has made a 1 and a 2cc. ampoule of Colchicine—1/100 grs. This has been given intravenously to 12 patients with acute gout with excellent results. The ampoule can be administered undiluted or in 500 cc. of 5% glucose solution. Swelling, pain, and inflammation have disappeared within 15 minutes. There were no side-effects. One or two injections will usually suffice in acute gout; in chronic gout several injections are necessary; in some cases of chronic gout with acute exacerbations colchicine seems to have no effect. The drug cannot be used over too long a period because it may cause liver damage. (John Dtaige Davis, Jr. Virginia Med. Monthly, 7:335, July, 1951).

Dysmenorrhea

Author offers the following theory for essential dysmenorrhea: with the tissue destruction during shedding of the uterine mucous membrane, histamine substances are formed in the uterus. If detoxification of this histamine is not sufficient, pathological manifestations occur: locally spasms of the smooth muscles; generally, nervous reactions. It seems that the casted off mucous membrane acts as a foreign protein and prompts allergic reactions. Author has administered pyribenzamine in 44 cases of essential dysmenorrhea (50 mg. tablets; one table t.i.d.) The drug was given for 2 to 3 days and never longer than one week. The effect of the treatment was generally satisfactory there were no side-effects observable with exception of slight drowsiness in a few cases. (G. Orban. Gynaecologia, 131:50, January 1951)

Irradiation Sequelae

Distressing sequelae following radiation to the pelvis for carcinoma are not rare. Yet, the symptoms usually subside after several months. In the majority of cases the patient is troubled with persistent proctitis and complains of rectal tenesmus, pain, intermittent diarrhea, and low abdominal discomfort. These symptoms can be treated with antispasmodics and analgesics. The pathological picture shows peculiar hyaline changes in the connective tissue, abnormal fibroblasts, changes in the mucosal muscular and vascular tissues. These changes in the intestinal wall may produce, necrosis, secondary infections with abscess formation, causing in some cases rectovaginal and visicovaginal fistulas. (A. Solosko and C. C. Glass. The Am. J. Proctol. 2:53, June 1951).

Umbilical Cord Prolapse

Authors report on 116 cases of cord prolapsed into vagina or protruding through vulva after rupture of membranes. When the cervix is only insufficiently dilated or when spontaneous delivery is waited for, the infant mortality rate is high. In cases of incompletely dilated cervix cesarean section is the treatment of choice. The same holds true in cases of old primipares or cases with narrow pelvis. When the cervix is fully dilated, the child should be delivered by forceps if less time than one hour has lapsed since diagnosis of cord prolapse. If there is transverse or breech presentation, delivery by extraction or version is advisable, under the supposition of a completely dilated cervix. (K. R. Brandeberry and R. W. Kistner. Am. J. Obst. and Gynec. 61:356, 1951).

THERAPEUTIC SUGGESTIONS

Conjunctivitis (Pink Eye)

The author recommends in cases of conjunctivitis due to the Koch-Weeks bacillus: one gram of dihydrostreptomycin in 100 cc. of normal saline solution, several drops in the eyes every 3 or 4 hours. The addition of silver nitrate does not seem to make the treatment more efficacious while streptomycin in conjunction with sulfadiazine appeared to hasten recovery. (W. P. Rhynne. J. Med. Assoc. Georgia, March 1951).

Postpartum Care

1) sterile perineal care; 2) insertion of Triple Sulfa Cream (approximately 5 cc.) by applicator high in the vagina and in the episiotomy wound, if existent. Daily vaginal administration of Triple Sulfa Cream at the hospital and at home; ten days after childbirth a vinegar-water douche was added, at low pressure, before the application of the Triple Sulfa Cream. Examination four weeks after delivery showed that the incidence of endocervicitis was negligible. (J. M. Palm. Am. J. Obstet. & Gynec., March 1951).

Neurosyphilis

Basing his therapy on his experiences on the permeability of the Blood-Brain barrier to penicillin, the author suggests the following treatment program and dosage of penicillin for patients suffering from parenchymatous neurosyphilis: First day—200,000 units, 3-hourly for 8 doses; second day,—50,000 units, 3-hourly for 8 doses; third day—100,000 units, 3-hourly for 8 doses; fourth to tenth day—500,000 units, 4-hourly for 42 doses. In patients, thus treated, no Herxheimer reactions occurred and no convulsions or signs of meningeal irritation. (R.H.F. Smith. J. Ment. Sc. 97:340, April 1951).

Rheumatic Fever

Prevention: Satisfactory results have been obtained with a daily dose of 200,000 units of calcium penicillin in 5% glucose solution, 45 minutes before breakfast. In tonsillitis cases, 300,000 units of crystalline procaine penicillin G suspended in peanut oil containing 2% aluminum monostearate, intramuscularly, repeated in 48 hours, and 600,000 units at 96 hours after onset of the sore throat. Treatment: 3-hydroxy-2-phenyl cinchoninic acid, 20 to 40 mg. per Kg. body weight per day. Sodium gentisate, 8 to 12 Gm. daily (allegedly as effective as salicylates, yet non-toxic). Massive doses of ascorbic acid (4 Gm. daily). ACH given in divided doses to a total of about 40 mg. for 8 days; side effects are not prominent. (E.G.L. Bywaters. Practitioner. 166:14, January, 1951).

Benzocaine in Puerperal Disturbances

Authors used a 20 percent benzocaine-oxyquinoline ointment for the treatment and relief of puerperal conditions such as painful episiorrhaphy wounds, tender hemorrhoids, painful and fissured nipples. Prompt relief was effected in 300 puerperal cases suffering from these conditions. (H. E. Schmitz; Ch. J. Smith and G. A. Carberry. The Western J. of Surg., Obst. & Gynec. March 1951, page 117). T.S.

Granuloma Inguinale

Terramycin in dosages from 20 to 87.5 Gm. is recommended; 2 Gm. daily for 12.5 days was the average program. 24 patients were either cured at the end of the treatment or on follow-up visits. Donovan bodies disappeared after 4 to 5 days of treatment (R. B. Greenblatt. J. of Ven. Dis. Inf. 5:113. May, 1951).

DIAGNOSTIC SUGGESTIONS

Carcinoma of the Uterus

Carcinoma of the fundus uteri is a less serious problem than cervical carcinoma: 1) it is much less common; some statistics indicate an incidence of only 1 to 8 in comparison with carcinoma of the cervix; 2) fundal carcinoma spreads and grows more slowly; 3) the cure rate is considerably higher than the cervical cure rate, being as high as 58 percent in some clinics; 4) cancer of the fundus is characteristically a disease of an older age group, occurring most frequently between ages 50 and 60; 5) Being a disease essentially of the postmenstrual period, abnormal bleeding is a signal that induces the patients to seek medical advice before it is too late.

Rickettsialpox

The onset is usually characterized by a primary skin lesion, which undergoes vesiculation, followed by formation of a black eschar, this lesion heals spontaneously with a scar. Frequently the regional lymph nodes are enlarged and painful. Systemic symptoms may be observed about one week after appearance of the initial lesion: fever, chills, headache, muscular aching, lassitude. The essential feature of rickettsialpox is a rash, appearing from the first to the sixth day of fever. This rash first consists of erythematous maculopapules, on which later a vesicle forms. This vesicle heals without scarring. There is no definite predilection of the rash as to sites. "The diagnosis of rickettsialpox is confirmed by the development in convalescence of a high titer of complement-fixing antibodies in test with antigens of *Rickettsia akari*." (G. Pike; S. Cohen and E. S. Murray. New Engl. J. Med. 243:013, December 7, 1950)

Polycystic Ovaries

"A history of menstrual vagary—particularly amenorrhea—sterility and recurring frontal headaches plus the finding of hirsutism support a clinical presumptive diagnosis of bilateral polycystic ovaries." On pelvic examination a finding of bilaterally enlarged ovaries corroborates the diagnosis. If functional disturbance of the ovaries occurs early in life, uterine hypoplasia is usually observed. If the disturbance begins later in life, the uterus is usually normal. In prolonged amenorrhea, however, the uterus may be atrophic. According to the onset of the pathologic changes in the ovaries the amenorrhea may be either primary (shortly after the first periods) or secondary (after normal cycles throughout adolescent years). Hirsutism occurs in about 50% of cases and varies in degree and extent. (G. T. McCutchen and E. C. Kinder. (J. of South Carolina Med. Ass., 47:1. January 1951).

Fatigue Fracture

In fatigue fracture a basically sound material undergoes mechanical dissolution in response to prolonged concentration of strain on a localized area. "In the evolution of mechanical or structural parts, design is altered in deference to demonstrated habitual tendency to breakage at a constant point in response to more or less prolonged use." The authors report on two cases of fatigue fracture of the tibia. Characteristic radiographic findings are stressed by all authors. Callus is seen most often medially and posteriorly. The presence of symptoms of infraction of the medial cortex, early in the course, has also been noted. (R. P. Kelly and F. E. Murphy. Southern Med. J., 44:290, April 1951)

DIAGNOSTIC SUGGESTIONS

Emotions and Heart Function

A close relationship was observed between emotional reaction and heart activity during rest. Individuals in stress with vigilant behavior accompanied by anxiety or resentment displayed cardiac hyperactivity; situations in which discouragement and despair prevailed were characterized by cardiac hypoactivity. In the first condition exercise caused prolonged cardiac hyperactivity, while exercise in a situation of emotional relaxation did not prompt exercise intolerance of the heart; the subjective complaints in these states were palpitations, dyspnea and weakness. These symptoms were relatively mild in healthy patients with emotional fluctuations, they were accentuated in patients with neurocirculatory asthenia, and they were conspicuous in patients with organic heart disease in which exercise intolerance to a great degree was dependent on emotional reactions. (C.H. Duncan. I.P. Stevenson; H.G. Wolff. *Psychosomatic Medicine*, 13:36, January-February, 1951).

Primary Atypical Pneumonia

Authors reviewed 67 cases. They stress the variety of the clinical signs and symptoms, ranging from unexplained fever to grave pulmonary infection and circulatory collapse. In the differential diagnosis, other forms of pneumonia, tuberculosis, chronic bronchitis, cardiac compensation and emphysema, frequently could be excluded only with difficulty. The most common initial symptoms were malaise, fever, sore throat, chills, cough, headache and anorexia. (W. S. Jordon, Jr.; R. W. Albright; F. H. McGain and J. H. Dingle. *Am. J. Med.* 10:3, Jan. 1951)

Papillary Stasis in Pregnancy

Authors discuss the sudden appearance of intracranial hypertension during pregnancy or after childbirth. A conspicuous sign is stasis of the papilla; during pregnancy it evokes the suspicion of an intracranial tumor; post-partum, cerebral thrombo-phlebitis is the more probable diagnosis. During pregnancy there exists a vascular lability of vaso-motor origin. This may cause occasionally cerebral edema particularly in cases of a latent tumor. Authors warn not to make a diagnosis of eclampsia when convulsions appear in the presence of papillary edema and in the absence of hypertension and albuminuria. The etiological factors during pregnancy may be a brain tumor and after childbirth cerebral thrombophlebitis. (H. Giroire; A. Charbonnel and Vercelletto. *Rev. D'Oto-Neuro-Opht.* 22:602, October 1950).

Biliary Dyskinesia

This term refers to one of the several conditions responsible for postcholecystectomy pain. It designates upper abdominal colics of the biliary type, recurring after cholecystectomy, unassociated with chills, fever, increased values for direct-reacting serum bilirubin and disturbed hepatic function, for which surgical exploration of the abdomen has not disclosed an organic basis. Biliary Dyskinesia is presumed to be due to hyperirritability to the musculature of the sphincter of Oddi and the duodenum. Morphine and its derivatives in small doses often may induce or intensify the colics. (J. B. Gross; M. W. Comfort; D. P. Mathieson and M. H. Power. *Proc. Staff. Meet., Mayo Clin.* 5:81, Febr. 1951).

DIAGNOSTIC SUGGESTIONS

Canicola Fever

Clinically indistinguishable from Weil's disease, although the mortality rate is much lower. It has been frequently confused with virus meningitis and preparalytic poliomyelitis. The incubation period is from one to two weeks. The onset is sudden with fever, chills, myalgia and conjunctivitis. Renal involvement is common: oliguria and elevation of blood urea nitrogen to more than 100 mg. percent. Occasionally jaundice has been observed. Meningitis is a frequent complication. The disease is caused by *Leptospira canicola* which may be isolated from the urine during the second week of the illness. The important diagnostic test is the agglutination-lysis test of Schuffner and Mochtar. In the previous history of the patient association with dogs is frequently found. (R. C. Turrell and M. Hamburger. *Am. J. Med.* February 1951)

Carotid Body Tumors

The tumors are located in the superior, anterior cervical triangle of the neck at the anterior border of the sternocleidomastoid muscle. They grow behind the mandible toward the base of the skull. Lateral mobility (not vertical one) is usually present. Pharynx, esophagus, cervical sympathetic nerves, vagus nerve recurrent laryngeal nerve and internal jugular vein may be invaded or compressed, producing hoarseness, dysphagia, dyspnea, cough, and Horner's syndrome. Pain on turning the head or lifting weighty objects may be the main complaints. The pain is sharp, shooting, intermittent, radiating toward the ear of the affected side. The treatment is surgical removal. (R. W. McNealy and C. J. Sweitzer, *Southern Surg.* 16:1059, Nov. 1950).

Status Dysraphicus

Constitutional hereditary anomaly due to defective closure of the primary neural arch, at the level of the lower cervical and upper thoracic segments. Lesions consist of primary gliosis and cavity formations in the vicinity of the central canal of the spinal cord similar to those observed in syringomyelia. Passow found that 90% of cases showed Horner's syndrome. Other clinical symptoms are: in males, funnel chest, kyphoscoliosis, sternal anomalies, abnormal length of the upper extremities with increased extension span, trophic and vascular disturbances of the hand (acrocyanosis), flexion deformity of the little fingers; in females, heterochromia of the iris, breast of unequal size with defective pigmentation of the mammillae, disturbances in sensibility. Roentgenologically one may find spina bifida at the level of C-8, D-1 and D-2. (R. Pomeranz. *Radiology*, 3:363, March 1951).

Subarachnoid Hemorrhage

Most common causes are hypertension, aneurysms and arteriovenous malformations; trauma also has to be considered. The onset of the symptoms is usually sudden and explosive, beginning with headache, followed by unconsciousness. The neck is stiff and Kernig's sign is positive. The diagnosis is corroborated by the finding of bloody spinal fluid. Frequently there are no localizing signs but sometimes one finds hemiparesis, cranial nerve palsies (3rd nerve), etc. Prodromal symptoms are rare; yet in some cases localized pain over one eye and 3d nerve palsies have been present weeks before the onset of subarachnoid hemorrhage. (Charles F. Troland. *Virginia Med. Monthly*, 7: 349, July 1951).

DIAGNOSTIC SUGGESTIONS

Postcholecystectomy Syndrome

The following postcholecystectomy symptoms should be borne in mind

- 1) Calculi in the biliary ducts which average in about 10 percent of cases of acute cholecystitis and 13 percent in those with chronic Cholecystitis. Author states that these stones are overlooked in about 15 percent of cases in which the duct is explored.
- 2) Stone or inflammation of the cystic duct remnant, which occurs particularly when leaving too long a cystic duct and which may form a "new gallbladder".
- 3) Adhesions involving the duodenum or stomach. The discomfort is due to fixation of the duodenum to the underface of the liver at the site of the extirpation of the gallbladder. The consequence is angulation and distortion of duodenum and the pyloric end of stomach.
- 4) Hepatitis, cholangitis and pancreatitis. If jaundice was present before operation, residual inflammation of the hepatobiliary system and the pancreas should be considered diagnostically. Liver function tests and serum amylase tests are indicated.
- 5) Biliary Dyssynergia: pain in location of previous colic but of shorter duration; attacks may recur several times a day; they are accompanied by anxiety and emotional tension; each attack can be relieved presently by inhalation of 0.5 g. amyl nitrate or by sublingual application of 1/100 grain of nitroglycerin; a similar attack can be produced by injection of 1/6 grain of morphine; the attacks are not followed by icterus, fever or chills. (C. E. Gillespie. J. of the Kentucky State Med. Ass., 49:20, January 1951).

Acute Porphyría

The idiopathic type is due to a constitutional defect resulting from an inborn error of pigment metabolism. The toxic form is caused by metals and drugs, and occurs in certain diseases; lead and arsenic among the metals, barbiturates, nitrobenzol compounds and the sulfonamide group among the drugs, are the common causative agents. The syndrome of acute idiopathic porphyria is characterized by acute abdominal pain, neuritic pains and voiding of red urine (the urine may become red only on exposure to light). Heart signs include tachycardia, hypertension, and T wave changes in the EKG. Jaundice is a frequent complication. Laboratory confirmation of the diagnosis is essential: 1) spectroscopic examination of urine; 2) Watson-Schwartz test of urine (Ehrlich's aldehyde is added to urine, then chloroform is added. After shaking a red color appears); 3) Exposure of the urine to ultraviolet light results in a characteristic pink color. In the differential diagnosis the following conditions should be considered: acute gastrointestinal disease, Guillain-Barré syndrome, Landry's paralysis, tick paralysis, poliomyelitis. Red urine may be caused by intake of pyridium, phenolphthalein, cascara, senna and santonin, or by eating red beets and rhubarb. (A. M. Goldman and M. H. Kaplan. Ann. Int. Med. 34:415, Feb. 1951).

Syphilis of Larynx

Syphilis of Larynx usually occurs as the tertiary type of lues and may be the cause of chronic hoarseness in adult patients. This syndrome is characterized by gummatous nodules, ulcers, and perichondritis followed by fibrosis and stenosis. (G. L. Green, J. Ky. Med. Ass. 49:5, Jan. '51)

Books on Internal Medicine

A subject of high interest was dealt with at the Second Clinical ACTH Conference. The two volumes¹ give testimony of the progress in research and treatment. A large group of authors have contributed to this important collection of individual papers. A book of similar thoroughness is a presentation on the physiology and pathology of the kidney² which reflects every aspect of this essential organ with profound erudition. Congenital heart disease³ has more and more come into the foreground of diagnostic and therapeutic concern in recent years. The excellent and clear treatise of an English expert is a welcome addition to the extensive literature on this topic. An admirably lucid exhibition of a difficult problem, both in clinical and laboratory respects, is Quick's monograph on hemostasis; this book should be read by every general practitioner⁴. Knowledge on the still controversial topic of viruses⁵ is mediated in a concise condensation by one of the outstanding experts in this field. There is a convenient means to keep oneself abreast of the advances—in this significant branch of medicine. A clear and instructive description of the celiac syndrome will be wel-

comed by every physician with a pediatric practice⁶. The book at hand is not only a comprehensive exposition but also the result of a personal experience with more than 600 cases which gives the discussion an unequalled practical value. Considering the many debates in the medical literature on antihistamines a small but impressive review on histamine antagonists⁷ will be a worth-while reading.

1. Proceedings of the Second Clinical ACTH Conference. Volume I—Research; Volume II—Therapeutics. John R. Mote, M.D., Editor. New York. The Blakiston Company, 1951. 551 and 716 pages. Cloth. \$17.00.
2. The Kidney. Structure and Function in Health and Disease. By Homer W. Smith, Sc. D. Oxford University Press, New York, 1951. 1049 pages. Cloth. \$12.50.
3. Congenital Heart Disease. By James W. Brown, M.D. Staples Press, London and New York. 1950. 344 pages. Cloth. \$6.00.
4. The Physiology and Pathology of Hemostasis. By Armand J. Quick, M.D. Lea & Febiger, Philadelphia, 1951. 188 pages. Cloth. \$4.00.
5. An Introduction to the Study of Viruses. By Kenneth M. Smith, F.R.S. Pitman Publishing Corporation, New York 1950. 106 pages. Cloth.
6. Management of Celiac Disease. By Sidney Valentine Haas, M.D. and Merrill Patterson Haas, M.D. J. B. Lippincott, Philadelphia, 1951. 188 pages. Cloth. \$5.00.
7. Histamine Antagonists. By Frederick Leonard and Charles P. Huttner. Chemical-Biological Coordination Center. National Research Council. Washington, D.C. 1950. 122 pages. Paper. \$1.50.

SIDE GLANCES at History of Medicine

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